

## **BAB V**

### **KESIMPULAN DAN SARAN**

#### **5.1. Kesimpulan**

Peningkatan kadar PEG 6000 sampai 6 kali berat ketoprofen yang digunakan pada sistem dispersi solida ketoprofen-PEG 6000 yang diadsorpsikan pada laktosa dapat meningkatkan laju disolusi ketoprofen sebesar 2,1 kali.

Semakin besar kadar PEG 6000 sebagai matriks maka laju pelarutan dispersi solid ketoprofen-PEG 6000 yang diadsorpsikan pada laktosa akan semakin meningkat.

#### **5.2. Saran**

Dari hasil penelitian disarankan untuk dilakukan lebih lanjut mengenai stabilitas fisika dan kimia dari dispersi solida ketoprofen-PEG 6000 yang diadsorpsikan pada laktosa pada penyimpanan.

## DAFTAR PUSTAKA

- Abdou, H.M., 1989. *Dissolution, Bioavailability dan Bioequivalence*. Mack Publishing Co., Pennsylvania, pp. 12, 41, 53, 498.
- Ansel, H.C., 1989, *Pengantar Bentuk Sediaan Farmasi, edisi 4*; (Farida Ibrahim, Penerjemah). Penerbit Universitas Indonesia Press, Jakarta, hal. 254-268.
- Arias, M.J., Gines, J.M., Moyano, J.R., Rabasco, A.M., 1996. Dissolution properties and in vivo behaviour of triamterene in solid dispersion with polyethylene glycols. *Pharmaceutical Acta Helv.*, **71**, 229-235.
- Aulton, M.E., 1996. *Pharmaceutics : The Science of Dosage Form Design*. New York : Churchill Livingstone, pp. 75-79.
- Banakar, U.V., Lathia, C.D., Wood, J.H., 1992. Interpretation of dissolution rate data and techniques of in vivo dissolution. In : Banakar, U.V. (Ed.), *Pharmaceutical Dissolution Testing*. Marcel Dekker, Inc., New York, pp. 191-193, 402.
- Charumanee, S., Okonoki, S., Sirithunyalug, J., 2004, Improvement of the Dissolution Rate of Piroxicam by Surface Solid Dispersion, *CMU Journal.*, **3(2)**, 77-82. <http://www.Redzip.go.in/imvw1672.html>, (Online, 25 November 2005).
- Chiou, W. L. & Riegelman, S., 1971. Pharmaceutical application of solid dispersion systems. *Journal of Pharm. Science.*, **60(9)**, 1281 – 1301.
- Clarke's Isolation and Identification of Drugs 2nd ed.*, 1986. The Pharmaceutical Press, London, p. 697.
- Farmakope Indonesia IV*, 1995. Departemen Kesehatan Republik Indonesia, Jakarta, Hal. 611, 979, 989.
- Farmawati, I. Y. , 1997. Uji peningkatan laju pelarutan nifedipin dari dispersi solida nifedipine – PEG 6000 yang dibuat dengan metode pelarutan dan metode peleburan. *Skripsi Sarjana Farmasi*. Fakultas Farmasi. Universitas Airlangga, Surabaya, hal 68.
- Fernandez, M., Rodrigues, I.C., Margarit, M.V. and Cerezo, A., 1992. Characterization of solid dispersions of piroksikam – polyethylene glycol 4000. *International Journal of Pharmaceutics*, **84** : 197 – 202.

- Florey, K., 1976. *Analytical Profiles of Drug Substances*, Academic Press, New York, San Francisco, London, Vol. 5, 1976, pp. 444-469.
- Ford, J.L., 1986. The Current status of solid dispersion. *Pharmaceutical Acta Helv.*, **61**, 69 – 88.
- Giron, D., 1997. Thermal analysis of drugs and drug products. In : Swarbrick, J., Boyland, J.C., (Ed.), *Encyclopedia of Pharmaceutical Technology XV*, Marcel Dekker, Inc., New York, pp. 1-8.
- Geneidi, A.S., ElShamy, A.H., Awad, G.A.S., Hassan, A.O.K., 2004. Solid dispersion of famotidine: factorially designed capsule formulation and in vivo evaluation of antiulcer activity. *Saudi Pharmaceutical Journal*, **12** : 119-129.
- Godfried O.A., 2001. Used of polymers in solid dispersion technology. In : Habib, M.J., (Ed.), *Pharmaceutical Solid Dispersion Technology*, Technomic Publishing Co., Inc., Pennsylvania, pp. 67-68; 70-72.
- Gohel, M.C., 2005. A review of co-processed directly compressible excipients. *Journal Pharm. Science* ([www.cspscanada.org](http://www.cspscanada.org)), **8(1)**, pp.76-93, 2005.
- Gupta, M.K., Goldman, D., Bogner, R.H., and Tseng Y.C., 2001. Enhanced Drug Dissolutions and bulk properties of Solid Dispersions Granulated with a Surface adsorbent. *Pharmaceutical Development Tech.*, **4(6)**, pp. 563-564.
- Habib, M.J., Venkantaram, S., Hussain, M.D., 2001. Fundamentals of solid dispersions. In : Habib, M.J., (Ed.), *Pharmaceutical Solid Dispersion Technology*, Technomic Publishing Co., Inc., Pennsylvania, pp. 18-19; 27-28.
- Hirasawa, N., Danjo, K., 1998. Psychochemical Characterization and drug Release Studies of Naproxen Solid Dispersions Using Lactose as a carier, *Chem. Pharm. Bull.*, Vol 46(6), pp. 1027-1030.
- ISO (*Informasi Spesialite Obat Indonesia*), 2004. Jakarta : PT. Anem Kosong Anem (AKA), Vol 39, hal. 241-244.
- Jachowicz, R., Nurnberg, E., Pieszczyk, B., Kluczykowska, B., Maciejewska, A., 2000. Solid dispersion of ketoprofen in pellets. *International Journal of Pharmaceutics*, **206** : 13-21.
- Khan, K.A., 1975. The Concept of Dissolution Efficiency. *Journal Pharm. Pharmac.*, **27**, 48-49.

- Law, D., Krill, S.L., Schmidt, E.A., Fort, J.J., and Qiu., 2001. Physicochemical Considerations in the Preparation of Amorphous Ritonavir-poly(ethylene glycol) 8000 Solid Dispersion. *Journal Pharm, Sci.*, Vol. **90(8)**, pp. 1015-25.
- Martin, A. Swarbrick, J., Cammarata, A. 1990. *Farmasi Fisik*, jilid 1, ed. 3. (Yoshita, penerjemah). Penerbit Universitas Indonesia, Jakarta, hal. 1126-1129.
- Martin, A., Swarbrick, J., Cammarata, A., 1993. *Farmasi Fisik Jilid 2*, Ed. 3, (Yoshita, penerjemah). UI – Press, Jakarta, hal. 175-179, 827.
- Martindale Complete Drug Reference XXXIII*, 2002. London Pharmaceutical Press, London, pp 47-48, 1630-1631.
- Monkhouse, D.C., and Lach, J.L., 1972. Use of adsorbents in enhancement of drug dissolutions. *Journal Pharm. Science*, **61(9)**, pp. 1430-1440.
- Myrdal, M.K., Yalkowsky, S.H., 1999. Solubilization of drugs. In : Swarbrick, J., Boyland, J.C., (Ed.), *Encyclopedia of Pharmaceutical Technology XVIII*, Marcel Dekker, Inc., New York, pp. 161.
- Patel, M.M. & Patel, D.M., 2006. Fast dissolving valdecoxib tablets containing solid dispersions of valdecoxib. *Indian Journal Pharm. Science*, **68**, 22-26.
- Pharmaceutical Codex XII*, 1994. The Pharmaceutical Press, London, pp. 193-195; 934-935.
- Prabhu, S., Brocks, D.R., Betageri, G.V., 2001. Enhancement of dissolution of ethopropazine using solid dispersions prepared with phospholipid and/or polyethylene glycol. *Drug Development Industrial Pharmacy*, **27**, 413-418.
- Pujilitawati, T., 1996. Peningkatan laju disolusi nifedipine dalam sistem dispersi solida dengan pembawa PEG 6000, *Skripsi Fakultas Farmasi*, Universitas Airlangga, Surabaya, hal. 69.
- Rowe, R.C., Sheskey, P.J., Owen, S.J., 2003. *Handbook of Pharmaceutical Excipients*, 4<sup>th</sup> ed., The Pharmaceutical Press, London, pp. 545-550.
- Serajuddin, A.T.M., 1999. Solid dispersion of poorly water-soluble drugs : early promises, subsequent problems, and recent breakthroughs. *Journal of Pharm. Science*, **88**, 1058-1064.
- Scheffler, W.S., 1987. *Statistika untuk Biologi, Farmasi, Kedokteran, dan Ilmu yang Bertautan*, (Suroso, penerjemah), edisi 2. Penerbit ITB, Bandung, hal. 265.



- Shargel, L., and Yu, A.B.C., 1988. *Biofarmasetika dan Farmakokinetika Terapan*; (Fasich dan Sjamsiah, S., penerjemah). Penerbit Universitas Airlangga, Surabaya, hal 85-100.
- Sokal, R.R. & Rohlf, F.J., 1991. *Pengantar Biostatistika*, edisi kedua, (Nasrullah, penerjemah). Jogjakarta, Gadjah Mada University Press, hal 86.
- Suzuki H., 1996. Solid dispersions of benidipin hydrochloride. I. Preparation using different solvent system and dissolution properties, *Chem. Pharm. Bull.*, Vol. **44**, 364-371.
- Swarbrick, J. & Boylan, J.C., 1997. *Encyclopedia of Pharmaceutical Technology*. Marcel Dekker, Inc., New York, hal. 161 – 211.
- Tjay, T.H., Rahardja, K., 2004. *Obat-Obat penting, Khasiat, Penggunaan dan Efek-Efek Sampingnya*. Ed. 5. Elex Media Komputindo Kelompok Gramedia, Jakarta, hal. 308-303.
- Vadnere, M.K., 1990. Copresipitates and melts. In : Swarbrick, J., Boyland, J.C., (Ed.), *Encyclopedia of Pharmaceutical Technology III*, Marcel Dekker, Inc., New York, pp. 337.
- Voight, R., 1995. *Buku Pelajaran Teknologi Farmasi* (Soewandhi & Widiyanto, penerjemah), Gajahmada University Press, Yogyakarta, hal. 587 – 600.
- Wen, H., 2004. *Adsorption at Solid Surfaces – Pharmaceutical Applications*. *Encyclopedia of Pharmaceutical Technology*.  
<http://www.dekker.com/sdek/102076359-67499355/abstract~content=a713491743~db=enc> (10 Oktober 2005)
- Wilmana, P.F. 1995. Analgesik-antipiretik anti-inflamasi non steroid dan obat pirai. In : Ganiswara, S.G. (Ed.), *Farmakologi dan Terapi*, Ed. 4. Gaya Baru, Jakarta, hal. 217-218.
- Wurster, D.E., and Taylor, P.W., 1965. Dissolution Kinetic of Certain Crystalline Form of Prednisolone. *Journal Pharm. Science*. Vol **54**, pp. 670-676.